Space Weather Forecast

Issued on Wednesday, 09 March 2022 at 01:01 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Minor Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low over the period, with activity confined to isolated low Common class, these most likely from AR2965 which has rotated into view over the past 24 hours. AR2965 is likely to be complex, but currently is too close to the northeast limb for clear analysis. There are five other numbered region on the visible disc, of which AR2960 remains the most significant, although the region has reduced slightly in size with the loss of some intermediate spots. The remaining regions are relatively small and magnetically simple, although some are elongated.

A large filament eruption occurred from the northwest quadrant around 08/0400UTC. The associated CME is not expected to be Earth-directed.

Solar Wind / Geomagnetic Activity: The solar wind was characteristic of a waning connection to a 'coronal hole' fast wind. The solar wind speed started around 500 km/s, and peaked at 517 km/s at 08/0025 UTC, but then gradually decreased to end the day near background levels of 400 km/s. The solar wind's magnetic field was weak, as was the important north-south component. The corresponding geomagnetic activity was initially Unsettled but quickly decreased to become Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be low, with further isolated common-class flares and a slight chance of moderate-class activity. Late in the forecast period a new region may rotate on from the far side.

Solar Wind / Geomagnetic Activity: After starting with the solar wind at or close to background levels, two low confidence CMEs are in the forecast. The first may arrive late today (9th) and the other late tomorrow (10th). Geomagnetic activity is expected to be initially Quiet, then probably increasing Unsettled to Active later today and perhaps again late tomorrow, with a chance of Minor Geomagnetic Storm intervals. Then activity is expected to return to Quiet levels again for day 4 (12th).

Energetic Particles / Solar Radiation: No solar radiation storms are expected, however there is a very slight and increasing daily risk as the most significant regions rotate further west across the disc.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	20	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	25	25	25
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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